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TITLE: Low-cost composite compositions comprise hydratable cellulose-based micro-fibril fibres, swellable solid partially coated with the fibre, etc. - fabricated into absorbent sheets, tubes, etc. with high absorbency and softness, useful as water retainers, nappies, in feminine hygiene products, medial dressings, and underwater cable covers

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PATENT-ASSIGNEE: JAPAN ABSORBENT TECHNOLOGY INST[NIABN], NIPPON KYUSHUTAI
GIJUTSU KENKYUSHO[NIKYN]

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EQUIVALENT-ABSTRACTS: A highly absorbent composite composition
mainly comprises
fine hydratable microfibril fibres obtained from cellulose or its
derivatives
and a solid capable of swelling with water with at least part of

its surface
coated with the fibre.

Also claimed are the following (i) a similar composition in which the swellable solid and the microfibril fibres are bound; (ii) an absorbent sheet formed from the composite as absorption layer in a sheet-form support; (iii) a similar absorbent sheet in which support is liquid permeable with at least 1 surface of it bound to the absorption layer containing particulate polymer absorbents to provide a desired distribution pattern of a plurality of regions with high or less absorbency; (iv) another absorbent sheet containing the particulate polymer absorbents with short fibres added to improve its stable state when swelling; (v) yet another absorbent sheet with liquid-impenetrable supporting sheet containing recesses where the composite composition is placed and fixed for liquid absorption with leakage prevention; (vi) an absorbent tube consisted of a supporting sheet made from fibre web to hold particulate or fibrous polymer absorbents on at least 1 of its surfaces with formation of a tube shape in the inside surface as in the core; (vii) absorbent products particularly in sheet or tube shape, e.g. nappies for infants and adults, sanitary towels, and incontinence utensils; (viii) a process for making the composite compositions by dispersing the solid after inhibiting swelling with water and fibres in water then in an aqueous organic solvent, filtering, desolvation and drying; (ix) processes for producing absorbent sheets (1) by dispersing the microfibril fibres then adding short fibres and particulate polymer absorbent to give a slurry for spreading onto and filling a (liquid-penetrable) supporting sheet(s), particularly at least 1 layer, and in a desired pattern, with the sheets containing recesses with holes at the bottom, removal of the dispersion liquid, and drying; and (2) by dispersing the composition in a mixture

containing water and water-soluble multivalent alcohol with temperature-dependent viscosity to provide a slurry for spreading onto a sheet with control of temperature before removing liquid and drying; and (x) instruments for making the absorbent sheets by continuously supplying a slurry of the composition through a plurality of nozzles to the surface of a liquid-penetrable supporting sheet in which control of flow is provided, and the shape of the applied slurry area can be determined, e.g. in the form of a ribbon.

USE - The composite compositions can particularly be fabricated into sheets and tubes, particularly as absorbents on supporting sheets made of non-woven fabrics for application in various products such as nappies, feminine hygiene materials, medical dressings, underwater cable covers, water retainers and pest bedding materials.

ADVANTAGE - The composite compositions have extremely high absorbency, and are compact and stable due to the microfibril fibres, solid and short fibres used can form a network structure. The absorbed liquid is possible to be removed easily as well. Furthermore, they can be produced at low cost.

TITLE-TERMS:

LOW COST COMPOSITE COMPOSITION COMPRISE HYDRATED CELLULOSE BASED MICRO FIBRIL
FIBRE SWELLING SOLID COATING FIBRE FABRICATE ABSORB SHEET TUBE
HIGH ABSORB SOFT
USEFUL WATER RETAIN NAPKIN FEMININE HYGIENE PRODUCT MEDIAN DRESS
UNDERWATER
CABLE COVER

DERWENT-CLASS: A96 D22 F06 P21 P32 P34 P73

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